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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,885	07/03/2003	Baojia Huang	AWG 001	6866
7590	05/23/2005		EXAMINER	
FORTUNE LAW GROUP			GIBSON, ERIC M	
#315 100 Century Center Ct San Jose, CA 95112			ART UNIT	PAPER NUMBER
			3661	

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/613,885	HUANG, BAOJIA	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eric M Gibson	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 28 February 2005.
- 2a) This action is **FINAL**.                                   2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3-5,7-9,11-19,21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3-5,7-9,11-19,21 and 22 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 03 July 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1 and 3-5 are objected to because of the following informalities:
  - a. In claim 1, at line 6, "plan" should be –plane--.
  - b. Claims 3-5 are necessarily rejected as being dependent upon a rejected base claim.

Appropriate correction is required.

2. Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 4 claims dependence from canceled claim 2.

### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 3, 4, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hosokawa et al. (US005864391A).
  - a. As per claim 1, Hosokawa teaches a vehicle collision avoidance system (figure 18) that includes a circumferentially rotating (column 10, lines 62-63) pulsed

infrared laser beam scanner for generating a signal of an obstacle (210, figure 18) by scanning the vertical and horizontal planes simultaneously (see figure 5) and emitting and receiving a reflected portion from the obstacle (column 14, lines 19-22), a processing circuit for processing the signal and generating a plurality of signals (220, figure 18), a processor for processing the plurality of signals and generating a braking signal (200, figure 18), and a braking apparatus responsive to the braking signal (241, figure 18).

- b. As per claims 3 and 4, the scanner taught by Hosokawa is “operable to” scan an object from 1.6m to 120m, distances relevant in a collision avoidance system.
- c. As per claim 7, Hosokawa teaches a vehicle collision avoidance method (figure 19) that includes determining features of an obstacle using a circumferentially rotating (column 10, lines 62-63) pulsed infrared laser beam scanner (S20, figure 19), processing signals representative of the determined features (S70, figure 19), and braking the vehicle if the proceed signals indicate an imminent collision (S100, figure 19).
- d. As per claim 8, Hosokawa teaches scanning horizontally and vertically (figure 5).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa in view of Sizer, II (US004737958A).

a. As per claims 5 and 9, Hosokawa teaches the invention as explained in the rejection of claims 1 and 7. Hosokawa does not specify the exact specifications of the laser used in the invention. The use of laser scanners to detect objects in vehicle collision systems is well known in the art. The specific laser used in any application varies depending on the system's requirements. Furthermore, lasers can be *tuned to achieve desired specifications*, as is well known to one of ordinary skill in the art, including mandated *Federal safety specifications*. One such known laser is the "Nd: YAG" laser, exemplified in the description of Sizer. It would have been obvious to one of ordinary skill in the art, at the time of invention, to include a laser well known in the art and tuned as one of ordinary skill in the art would to achieve desired performance qualities, such as the YAG laser, as exemplified in Sizer.

5. Claims 11-15, 18, 19, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa in view of Maruko et al. (US20020091479A1).

a. As per claim 11, Hosokawa teaches a vehicle collision avoidance method (figure 19) that includes detecting obstacles using a circumferentially rotating (column 10, lines 62-63) pulsed infrared laser beam scanner (S20, figure 19), determining a relative distance to the obstacle (S30, figure 19), and braking the vehicle if the proceed signals indicate an imminent collision (S100, figure 19). Hosokawa teaches generally applying braking to avoid a collision, but does not teach determining a time to collision

and determining the braking force. Maruko teaches a braking control system with object detection system interaction that teaches determining a time to collision (page 6, [0049]) and determining the braking force to avoid a collision with the obstacle (page 8, [0068]). It would have been obvious to one of ordinary skill in the art, at the time of invention, to determine the time to collision and determine the braking force required to avoid a collision with the obstacle in the system of Hosokawa, as taught by Maruko, in order to properly implement the braking contemplated by Hosokawa.

- b. As per claim 12, Maruko teaches determining target acceleration derivative with respect to time ( $Gx^*$ , page 5, [0039]).
- c. As per claim 13, Maruko teaches a relative distance and a time to collision (page 6, [0049]).
- d. As per claim 14, Maruko teaches determining the obstacle velocity (page 9, [0072]).
- e. As per claim 15, Maruko teaches that the time to collision is determined from the second order factor of relative distance (page 6, [0049]).
- f. As per claim 18, Maruko teaches time to collision determination (page 6, [0049]).
- g. As per claim 19, Maruko teaches a rate of approach ( $dL/dt$ , page 6, [0049]).
- h. As per claims 21 and 22, Maruko teaches determining the obstacle processing (page 9, [0072]), which includes factors that are mathematically related through well-known formulae.

6. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hosokawa and Maruko as applied to claim 11 above, and further in view of Shinmura et al. (US20010003810A1).

a. As per claims 16 and 17, the combination of Hosokawa and Maruko teaches the invention as explained in the rejection of claim 11. The combination does not teach determining and taking into account the bumpiness of the road in determining the braking force. Shinmura teaches a collision avoiding system for vehicles that includes determining and taking into account the bumpiness of the road during the automatic braking to avoid a collision, in order to compensate for the disturbance during braking operation (page 1, [0009]). It would have been obvious to one of ordinary skill in the art, at the time of invention, to determine and take into account the bumpiness of the road in determining the braking force in the system and method of the combination, in order to compensate for the disturbance during braking operation, as taught by Shinmura.

#### ***Response to Arguments***

7. Applicant's arguments filed 2/28/2005 have been fully considered but they are not persuasive.

a. Specifically, applicant's arguments that Hosokawa does not teach a circumferentially rotating laser are not persuasive. The Examiner believes that Hosokawa does in fact teach that the laser rotates circumferentially in column 10 at lines 62-63. The adjective as used to modify the limitation of "rotating" supports the

reasonable interpretation by the Examiner that the laser rotates in a circle. Hosokawa teaches that the laser rotates 360 degrees in the above cited portion of the reference. This satisfies the limitation that the laser be "circumferentially rotating" as used in the claims.

b. Additionally, as for the applicant's arguments that the type of laser used in Sizer does not satisfy the given specifications, the Examiner again points out that modifications to achieve a given output would be obvious to one of ordinary skill in the art at the time of the invention, especially so when power output and specifications are mandated by the government. Tuning a laser to government required safety levels for use on highways is its own obviousness motivation.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric M Gibson whose telephone number is (571) 272-6960. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EMG



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PRIMARY EXAMINER